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| 10/758,099  | 01/16/2004  | Paul Marcius Butterfield | 117435              | 4975             |
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| ZHU, RICHARD Z  |             |                          |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## DETAILED ACTION

### *Response to Applicant's Arguments*

#### **In re “Klassen does not disclose a registration patch and forming a registration patch”:**

In order to perform color trapping or color misregistration compensation, it is necessary to first determine the printer characteristics that are most likely to result in color misregistration. In that respect, the purpose of printing an initial image in *Klassen* is to define the physical characteristics of a printer (**Col 10, Rows 45-48**) by measuring the colorimetric properties of the printed image so that the printer output can be calibrated to compensate for color misregistration (**Col 15, Rows 35-60**). Similarly, *Castelli* discloses the point of printing a registration pattern on a registration patch or forming a registration patch is to allow the definition of the physical characteristics of a printer on the basis of the colorimetric properties of the pattern printed with the intent to calibrate the printer output to compensate for color misregistration (**Col 6, Rows 18-30 and Col 7, Rows 1-30**). That is, if the printer of *Klassen* is modified to print registration patterns on registration patches as taught by *Castelli*, its computer will still be able to measure color misregistration and calculate trapping parameters to calibrate printer output because registration patterns printed on patches are still images printed on a piece of paper. The office action never alleged that *Klassen* alone teaches the limitation as required by Claim 1 and the integrity of applicant's invention is not violated by *Klassen* as modified by *Castelli* because registration patterns printed on patches are still images that can be scanned and converted into CIE-LAB space as taught by *Klassen*.

#### **In re “Klassen does not disclose detecting a color value from a registration patch”:**

**Klassen** essentially discloses detecting a color value from a scanned image (Col 10, Row 43-50) to derive a pair of input color (a, b) that is convertible to LAB equivalent (Col 13, Rows 48-50). In order to do that, one must convert the input color into CIE-XYZ using the following equation:

$$\begin{bmatrix} X \\ Y \\ Z \end{bmatrix} = \frac{1}{b_{21}} \begin{bmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \\ b_{31} & b_{32} & b_{33} \end{bmatrix} \begin{bmatrix} R \\ G \\ B \end{bmatrix} = \frac{1}{0.17697} \begin{bmatrix} 0.49 & 0.31 & 0.20 \\ 0.17697 & 0.81240 & 0.01063 \\ 0.00 & 0.01 & 0.99 \end{bmatrix} \begin{bmatrix} R \\ G \\ B \end{bmatrix}$$

And then convert from CIE-XYZ to CIE-LAB:

$$\begin{aligned} L^* &= 116 f(Y/Y_n) - 16 \\ a^* &= 500 [f(X/X_n) - f(Y/Y_n)] \\ b^* &= 200 [f(Y/Y_n) - f(Z/Z_n)] \end{aligned}$$

Therefore, the step of converting the input color into LAB requires the detection of a color value from the scanned document. A parallel concept is taught in **Castelli** where the registration patch having registration patterns printed thereon is scanned by a colorimeter to derive a color value from the registration patch so that mapping to LAB color space is possible (Col 6, Rows 18-30).

In conclusion, the examiner never alleged that **Klassen** disclose detecting a color value from a registration patch. Rather, **Klassen** as modified by **Castelli** discloses detecting a color value from a registration patch.

**In re “Klassen does not disclose comparing detected color values”:**

Below is the definition of “compare” from [www.dictionary.com](http://www.dictionary.com):

to examine (two or more objects, ideas, people, etc.) in order to note similarities and differences.

In engineering and science, the step of comparing or examining two objects involves deriving or quantifying a relationship between said two objects; determine or note, on the basis of said quantification, the similarities and differences of the two objects.

*Klassen* discloses constructing a Visibilityvector from the input colors and the combined color value (Col 13, Rows 66-67). This is substantially a quantification of a relationship between the input colors and the combined color value. It is on the basis of this quantification, in view of a determined threshold (Col 14, Rows 1-15), the similarities and differences of the input colors and the combined color value is determined so that the likelihood of color misregistration could happen under this combination of input colors and combined value can be derived. Therefore, *Klassen* does indeed disclose “comparing detected color values with the combined color value”.

**In re “Decker and Castelli fail to cure the deficiencies of Klassen”:**

*Castelli* discloses that it is well known in the art to print registration patterns on registration patches. That is, modifying *Klassen* with *Castelli* would not alter the manner in which color misregistration is detected and compensated for by having the scanner of *Klassen* scan images of registration patterns on registration patches instead of images on documents.

*Decker* discloses that it is very well known in the art to take into consideration the size of a registration pattern in order to detect color misregistration. *Decker* as modified by *Castelli* means that a registration patch must be large enough to fit the registration pattern. This substantially has the effect of considering dimension of the registration patch since its dimension correlates with the dimension of registration pattern. By considering the dimension of registration pattern and therefore dimension of the registration patch in the combined teachings

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of *Klassen* and *Castelli*, the manner in which color misregistration is detected and compensated for can only be enhanced by factoring in dimensions of the registration patch since the registration patch must be large enough to fit a registration pattern that is large enough in dimension to give the computer of *Klassen* a correct overall assessment of color misregistration. Therefore, the deficiencies of *Klassen* are clearly remedied by *Decker* and *Castelli*.

**Amendment to the independent claims:**

Newly added limitation "on a recording document" raises new issue that requires further search.

In order to meaningfully expedite the prosecution of this case, the applicant is advised to distinctly claim the manner in which applicant's color misregistration is detected and compensated for.

RZ<sup>2</sup>

12/04/2008